

What is claimed is:

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5 An artificial intelligence system for the analysis of nucleic acid array hybridization information, comprising:

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10 (i) a Web server that communicates with at least one user facility, receiving and transmitting hybridization information, supporting data analyses, and providing security and business functions,
(ii) a database server that stores hybridization profiles, clinical information associated with hybridization profiles, and statistical information associated with hybridization profiles; and
(iii) an application server that facilitates information exchange between the Web server and the database server.

15 2. The system of claim 1, wherein the Web server further comprises functions selected from the group consisting of product information, product ordering, company information, statistical summary of patient database, request to the application server, and security.

20 3. The system of claim 1, wherein the database server further comprises functions selected from the group consisting of genetic pattern database for chip ID, patient generic pattern database, and statistical data summary.

25 4. The system of claim 1, wherein the application server constructs at least one query for the database server, and performs at least one statistical comparison between hybridization parameters received by the Web server and hybridization parameters supplied by the database server.

30 5. The system of claim 4, wherein the application server further comprises functions selected from the group consisting of database query for chip ID genetic pattern, database query for statistical data summary, pattern match statistical processing, and results output.

Sheet 5

6. The system of claim 1, wherein said artificial intelligence system further comprises an operations server.

7. The system of claim 6, wherein the operations server comprises functions selected from the group consisting of order management, billing management, and order tracking.

8. The system of claim 1, wherein the user facility is linked to said artificial intelligence system through encrypted network connections.

10 9. The system of claim 8, wherein the user facility is a remote user facility.

10. The system of claim 8, wherein the user facility is a local user facility.

15 11. The system of claim 8, wherein the user facility is selected from the group consisting of a hospital, a clinic, a research facility, a business, and a non-profit organization.

12. The system of claim 8, wherein the user facility comprises:

20 (i) an optical scanning system to collect hybridization signals from a nucleic acid array,

(ii) an image processing system to convert optical data from the optical scanning system into a set of hybridization parameters,

(iii) a computer linked to a network; and

(iv) a user interface to display data related information.

25 13. The system of claim 12, wherein the network is the Internet.

14. The system of claim 12, wherein the user interface further comprises functions selected from the group consisting of manipulating data, searching data, analyzing data, and displaying data.

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15. The system of claim 14, wherein the user interface further comprises displayed information selected from the group consisting of user information, clinical sample information, testing information, clinical test results report, R&D sample information, chip information, results report for biopharma chip, therapeutic choices, and billing information.

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16. The system of claim 12, wherein the data related information is selected from the group consisting of hybridization information, patient information, statistical information, clinical information, medical information, diagnosis information, treatment information, biological information, product information, and company information.

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17. The system of claim 12, wherein the user facility further comprises functions selected from the group consisting of generic pattern processing, request for pattern match for chip ID, and report generation.

18. The system of claim 8, wherein the user facility comprises:
(i) a computer linked to a network; and
(ii) a user interface to display data related information.

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19. The system of claim 18, wherein the data related information is selected from the group consisting of hybridization information, patient information, statistical information, clinical information, medical information, diagnosis information, treatment information, biological information, product information, and company information.

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20. The system of claim 1, comprising a system architecture based on a shared processing functionality between at least one remote location and at least one central data processing facility.

21. A method for diagnosing a physiological condition, comprising:
(ii) collecting hybridization information from a nucleic acid array,

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- (iii) transmitting said hybridization information to a central data processing facility,
- (iv) analyzing said hybridization information to generate a hybridization profile,
- (v) comparing said hybridization profile to stored hybridization parameters to provide analyzed data, and
- (vi) determining the physiological condition suggested by said analyzed data through the use of artificial intelligence.

10 22. The method of claim 21, further comprising recommending methods of treatment based on the physiological condition.

23. A method for diagnosing a physiological condition, comprising:

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- (ii) collecting information from a proteomics chip,
- (iii) transmitting said information to a central data processing facility,
- (iv) analyzing said information to generate a proteomics profile,
- (v) comparing said proteomics profile to stored proteomics parameters to provide analyzed data, and
- (vi) determining the physiological condition suggested by said analyzed data through the use of artificial intelligence.

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24. The method of claim 23, further comprising recommending methods of treatment based on the physiological condition.